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# MX3X Battery Charger User Guide



## IMPORTANT NOTICE.

LXE's MX3X is obsolete. This electronic guide has been made available as a courtesy to our customers. Contact your [LXE representative](#) for replacement and assistance.

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## Cautions and Warnings

### Multi-charger

- There is a risk of explosion if the MX3X Li-Ion battery in the charging well is replaced by an incorrect type. Other batteries or battery packs may burst causing injury or property damage.
- Do not insert any other type of Li-Ion battery in the MX3X battery charging well.
- Do not allow cleaning agents of any kind to contact the battery charging contacts; they may be damaged. If necessary, clean them with a soft-bristle, dry brush or compressed air.
- Disconnect the charger from AC power by pulling the plug; not the cord.
- Use care when inserting battery. Do not "slam" or slide the battery into the pocket, this could damage the charger.
- Keep dirt and foreign objects out of the battery pocket. Do not short circuit any of the contacts in the battery pocket, this could result in injury or property damage.
- Do not disassemble or perform modifications to the charger. There are no user serviceable components in the charger.

### Li-Ion Battery Pack

- Dispose of used Li-Ion batteries according to the instructions for the type of battery.
- When not in use, lay the battery pack contact-side up in a protected environment.
- Do not store the Li-Ion battery pack in direct sunlight or anywhere the battery pack cannot cool down.
- If the Li-Ion battery pack is hot after removal from the MX3X, allow it to cool at room temperature or in a cool air stream before placing it in the charger.
- Do not dispose of Li-Ion batteries into a fire. Burning will generate hazardous vapors and may cause the battery to explode. Failure to observe this warning may result in injury from inhalation of vapors or burns from flying debris.
- Do not immerse Li-Ion batteries in water or any other liquid. If batteries are immersed, contact LXE.
- Do not disassemble or perform modifications to the battery. There are no user serviceable components in the battery.
- Do not place the Li-Ion battery into a pocket or toolbox with conductive objects (coins, keys, tools, etc.). A Li-Ion battery placed on damp ground or grass could be electrically shorted.
- Do not store Li-Ion batteries above 140°F (60°C) for extended periods.
- Failure to observe these warnings could result in injury or damage to the battery from rapid discharge of energy or battery overheating.

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# Introduction

The LXE MX3X Battery Multi-charger is designed to simultaneously charge five Rechargeable Lithium Ion (Li-Ion) Battery Packs. The time required for charging is dependent upon the battery pack temperature and conditions.

The charger should be located in an area where it:

- Is well ventilated.
- Is not in high traffic areas.
- Locates or orients the AC cord so that it will not be stepped on, tripped over or subjected to damage or stress.
- Has enough clearance to allow easy access to the power port on the back of the device.
- Is protected from rain, dust or inclement weather.

This device is intended for indoor use only and requires an indoor AC power source. The charger is not approved for use in Hazardous Locations.

This device cannot charge/recharge coin cell backup batteries sealed inside the mobile device.

## Quick Start

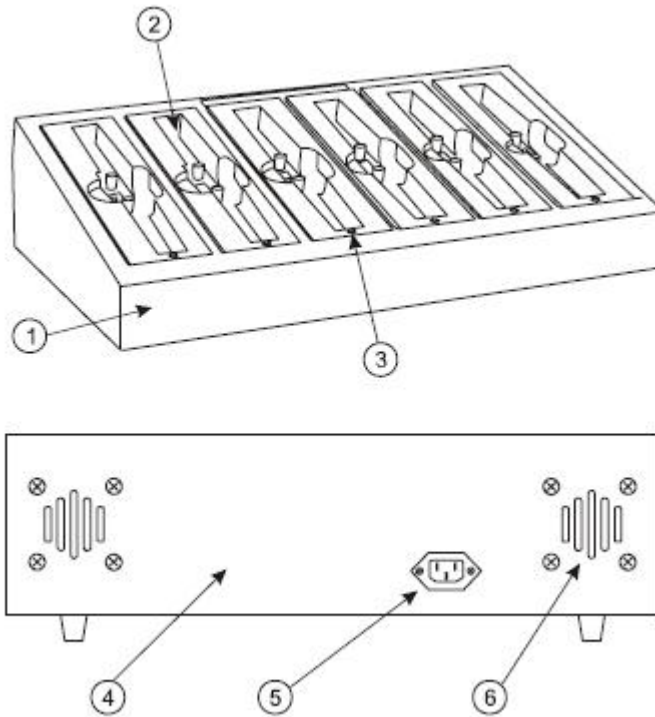
The following Quick Start instructions are abbreviated and intended to give a brief overview of the process to be followed.

1. [Assemble](#) the power supply.
2. [Connect](#) the power supply to the charger.
3. [Insert](#) a battery.
4. When batteries are [charging](#), the setup process is complete.

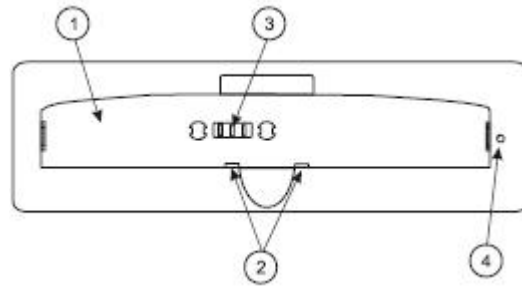
*Note: Store the charger and batteries when not in use in a cool, dry, protected place.*

# Components

## Battery Multi-charger



1. Front
2. Battery Charging Pocket
3. Battery Charge LED Indicator
4. Back
5. Analyze LED
6. Power Connection
7. Ventilation Slots



1. Battery Charging Pocket
2. Retaining Pins
3. Battery Charger Contacts
4. LED Indicator

## Installation

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### Assemble the Power Supply

Assemble the AC adapter for the MX3X Battery Multi-charger before connecting it to the charger.

The AC power supply for the multi-charger is shipped with the multi-charger. Contact your [LXE representative](#) if there is no AC cable.

The multi-charger power supply is intended for use with the multi-charger *only*.



- Plug the 3-prong cable into an AC wall outlet.
- Firmly press the female end of the power cable into the male connector at the back of the multi-charger.

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### Setup

**Prerequisite:** The AC Adapter is assembled and receiving AC power.

Ensure that the location you choose for the battery charger is:

- Well ventilated.
- Is not in high traffic areas.
- Has enough clearance to allow easy access to the power port on the back of the device.
- Is protected from rain, direct sunlight, dust or inclement weather.

Place the multi-charger on a flat, horizontal, hard surface or fasten securely to stable surface using the keyhole openings on the bottom of the multi-charger.

Do not insert battery packs until the charger has finished powering up.

- Insert the power connector into the power outlet at the back of the charger.
- AC power is now being applied to the charger and it begins to power up.
- Charge bay LED flashes while the charger enters and exits it's startup check.
- When the charge bay LEDs are not illuminated, the battery charger is ready for use.



# Charging Batteries



**New batteries should be charged fully before first use.** The life and capacity of a Lithium Ion battery pack can vary significantly depending on the discharge current and the environment in which it is used.

Use the charge function to return a MX3X battery pack to its maximum available power capacity.

Use the analyze function to compare the battery pack's maximum available capacity to the specified capacity. This allows you to determine the battery pack's power loss due to age. As the capacity decreases, the amount of time the battery pack can power a mobile device will decrease.

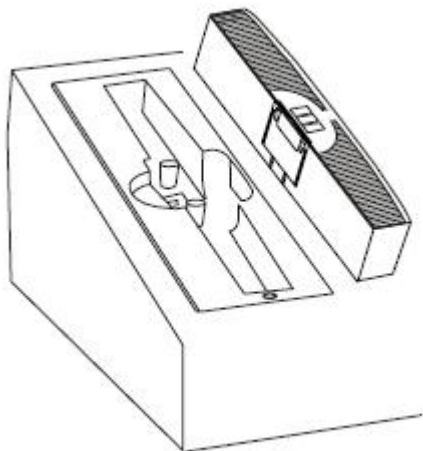
When a battery is placed in a charging pocket, the multi-charger begins charging the battery. There is a slight delay while the multi-charger evaluates the condition of the battery (ambient temperature, remaining charge, etc.) before charging begins.

As with all batteries, expect to see a reduction in the total number of operations a fully charged battery pack can deliver as it ages. When the battery reaches end-of-life, it must be replaced.

Battery packs do not need to be fully discharged between charge cycles.

While charging, the charger and battery pack will generate enough heat to feel warm. This is normal and does not indicate a problem.

## Inserting a Battery into the Charging Pocket



**Caution!** It is important that battery packs are inserted into the charging pocket correctly. Inserting the battery incorrectly could result in damage to the battery pack or the charger.

**Caution!** Do not “slam” the battery pack into the charging pocket. Damage may result.

When preparing the battery pack for insertion into the battery charging pocket, hold it with the Back (the side with only three metal contacts and grooved surface) upward, and the Top (the side with the metal retaining clip) to the left. The Front (the side with the six contacts and the smooth surface) will face downwards, into the charging pocket.

Lower the battery pack straight into the battery charging pocket and push it down firmly until the retaining clip catches on the retaining pins.

## Remove the Battery from the Charging Pocket

Push the latch toward the battery and, grasping the battery and latch firmly, take the battery out of the charging pocket.

## Interpreting the Charging Pocket LEDs

The status of the charge operation is indicated by the color of the LED for each charging pocket.

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### **RED Continuous** - on any charge pocket

- Continuous red means the battery pack is charging.

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### **RED FLASHING** - on all charge pockets

- Battery charger fault or failure.

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### **GREEN** - on any charge pocket

- Continuous green means the battery pack charge is complete - Battery is Ready.

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### **YELLOW** - on any charge pocket

- Continuous yellow / amber means the battery pack temperature is [out of range](#). The charging pocket is in standby mode while the pocket waits for the battery pack to warm up or cool down.

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### **NO LIGHT** - on a charge pocket

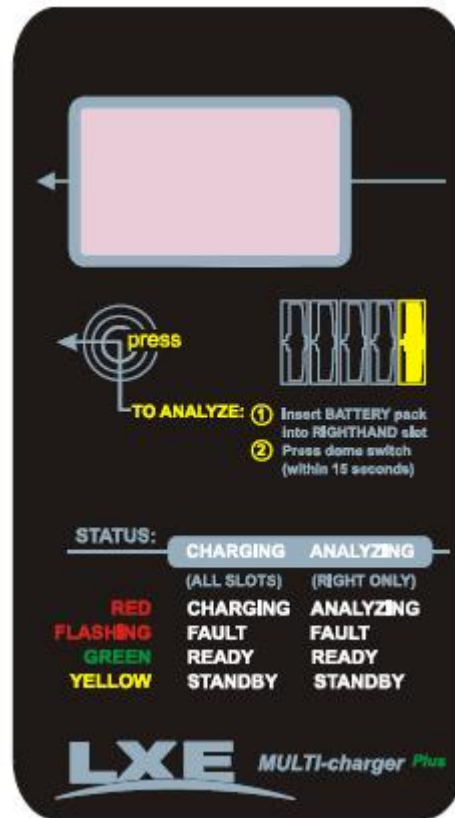
- No light on a charge pocket means there is no battery pack installed
- or the battery pack in the pocket is not fully inserted
- or a defective or damaged battery pack is installed
- or the charger is defective or damaged. Refer to [Troubleshooting](#).

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### **NO LIGHT** - on all charge pockets

- No light means there is [no AC power](#) applied to the Multi-Charger.

## Interpreting the LCD Screen



The charge/analyze pocket utilizes an LCD screen to display the status of the charge or analyze operation. The LCD screen is located to the right of the single charge/analyze pocket. Additional information may be displayed including voltage, capacity and battery fault information, as appropriate.

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### Charge Only

When a battery is in the charge/analyze pocket and the analyze dome switch (highlighted by the word "press" in yellow) has not been pressed, the battery is charged only. The charge process requires less than 4 hours.

The LCD indicates a rounded off version of voltage and:

- CHARGE is displayed on the screen.
- The battery is charging.
- The battery voltage under charge (11.2VDC). The voltage can vary from 9.0VDC to 12.7VDC.

## Ready

The Ready indicator is displayed at the end of the Charge Only process.

The LCD indicates:

- The charging is complete and the battery is ready for use (READY).
- The battery voltage after charge (12.2VDC). This reading can vary between 10.2VDC and 12.6VDC.

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## Analyze

### Initial Charge

When a battery is in the charge/analyze pocket and the analyze dome switch has been pressed within 15 seconds of inserting the battery, the analyze process is started. The first step of the analysis process is to charge the battery, which may take up to three hours.

The LCD indicates a rounded off version of voltage and:

- The battery is charging, indicated by the word CHARGE on the screen.
- This is the first charge cycle in the analyze process, indicated by the number 1 on the screen.
- The battery is under analysis, indicated by the word ANALYZE on the screen.
- The battery voltage under charge is displayed (11.2VDC). The voltage can vary from 9.0VDC to 12.7VDC.

### Discharge

The next step in the analysis is the automatic discharging of the battery pack. The discharge requires 1.5 to 4 hours.

The LCD indicates:

- The battery is discharging, indicated by the word DISCHARGE on the screen.
- This is the first (and only) discharge cycle, indicated by the number 1 on the screen.
- The battery is under analysis, indicated by the word ANALYZE on the screen.
- The battery capacity as measured during the discharge (1120mAh).
- The battery voltage under discharge (10.2 VDC). This can vary from 9.0 VDC to 12.7 VDC.

## Final Charge

The final step in the analysis process is to recharge the battery pack after it is fully discharged. The final charge requires about 2.5 hours.

The LCD indicates:

- The battery is discharging, indicated by the word DISCHARGE on the screen.
- This is the second (and final) charge cycle, indicated by the number 2 on the screen.
- The battery is under analysis, indicated by the word ANALYZE on the screen.
- The battery capacity measured during the analysis (1310mAh). This is an example and can vary depending on the battery pack's maximum capacity.

## Ready

The Ready indicator is displayed at the end of the analyze process.

The LCD indicates:

- The battery was under analysis, indicated by the word ANALYZE on the screen.
- The process is complete and the battery is ready for use, indicated by the word READY on the screen.
- The battery capacity as it is measured during the analysis (1400mAh).
- The battery voltage after charge (12.2VDC). This can vary from 12.0VDC to 12.7VDC.

## Battery Fault

On rare occasions, the charge or analysis process may fail. If this occurs, note the information on the LCD screen. Contact your [LXE representative](#) if the problem cannot be resolved from the information in the "Troubleshooting" section.

The LCD indicates:

- The process when the fault occurred. For example, if the fault occurred during the discharge cycle of the analyze process, words (DISCHARGE; 1; ANALYZE) are displayed on the screen.
- A battery fault has occurred, indicated by the words BAT. FAULT on the screen.
- The current battery voltage.
- An [error code](#) indicating the nature of the fault (for example, E04). Contact your [LXE representative](#) for more information on the error code.

## Troubleshooting

The following is intended as an aid in determining whether the battery pack or the charger may be malfunctioning:

Problem	Cause	Solution
Battery pack does not fit in battery well.	Different manufacturer's battery pack, or there is an object in the charging pocket.	Check if the MX3X battery pack has LXE part number MX3A378BATT/158224-0001 on the label. If not, do not use.  Remove the object from the charging pocket.
No battery pack in charger, but any of the LEDs are on.	Dirt or foreign objects are in the battery well.	Unplug charger from AC supply. <a href="#">Remove any dirt or foreign objects from charging pocket</a> . If the LEDs continue to remain ON, the charger may be defective. Return charger to an authorized LXE service center.
Charger is plugged into a live outlet, battery pack is inserted, but RED LED is OFF and no other LEDs are on, or all LEDs are off.	Battery pack is not making contact with charging terminals in the charging pocket	<a href="#">Push battery pack in firmly</a> . Do not "slam" the battery pack into the charging pocket.
Charger is plugged into a live outlet, battery pack is inserted, but RED LED is OFF and no other LEDs are on, or all LEDs are off.	Faulty battery pack.	Replace battery pack
Charger is plugged into a live outlet, battery pack is inserted, but RED LED is OFF and no other LEDs are on, or all LEDs are off.	New battery pack, same result.	Contact your <a href="#">LXE representative</a> for replacement options.
When you first put a fully charged battery pack in the battery well, the RED LED comes on, indicating the battery pack is charging.	During the first few minutes, the charger checks the battery pack for correct voltage and charge state. During this time the LED is RED and is continuously ON. After charging is complete, the LED is GREEN.	There is nothing wrong with the battery pack or charger.  Do not "top off" a fully charged battery pack by repeatedly placing it in charger. The battery pack may overheat and be damaged!
LED is flashing RED at any station.	Current could not be sourced through the battery pack due to age, exhaustion or damage to the cell(s). The battery pack does not communicate with the charger.	Contact your <a href="#">LXE representative</a> for battery pack replacement options.
LED is flashing RED at any station.	The charger's timeout period has expired.	Make sure that the battery pack temperature is <a href="#">within specification</a> and retry charging. Contact your <a href="#">LXE representative</a> if problem repeats, for battery pack replacement options.

Problem	Cause	Solution
LED is flashing RED at any station.	The battery pack voltage has not reached 10.6VDC within 90 minutes and the charger has timed out.	Contact your <a href="#">LXE representative</a> for battery pack replacement options.
Solid YELLOW / AMBER LED when battery pack is inserted in the charger.	The battery pack is too hot or too cold to charge.	Remove battery pack from the charger and allow it to adjust to room temperature.  <i>Note: If the battery pack is left in the charger, it will cool down or warm to a temperature upon which the charger will begin the charge cycle. However, depending on the temperature of the battery, it may take 2-3 hours to adjust. The cool-down / warm-up of a battery pack is much quicker if the battery is not in the battery well.</i>
YELLOW LED comes on when battery pack is in the CHARGING cycle. The charge cycle has been suspended.	The battery pack has become too hot or too cold to continue charging.	If this is the first time the battery pack has initiated a temperature fault, remove the battery pack and allow it to achieve room temperature. Then try to charge the battery pack a second time. If the YELLOW LED comes on again, the battery pack is defective, or the <a href="#">temperature of the charger</a> or battery pack is out of specification.
BAT. FAULT is displayed in the LCD screen. (Charge/analyze pocket)	A problem has occurred with the Multi-Charger Plus or the battery pack.	Note the <a href="#">Error code</a> displayed. Unplug charger from outlet. Remove any dirt or foreign objects from charger pocket. Check the pocket for bent or broken pins. Contact your <a href="#">LXE representative</a> if the error code reoccurs.
	<b>Error Code</b>	<b>Indicated Problem</b>
	E01	Power Supply Under-Voltage
	E02	Battery Over-Voltage
	E03	Discharge Fault
	E04	Four Hour Timeout
	E05	90 Minute Timeout
	E06	Six Hour Timeout
	E07	Analyze 10 Hour Timeout
	E08	+VCHRG Not Present
	E12	Battery Open Circuit



## Maintenance, Storage and Service

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### Maintenance

Unplug the charger from the power source before cleaning or removing debris from charging pockets.

Use only mild detergent with a slightly damp cloth to clean the outside of the charger. Do not use solvents or flammable cleaners. Allow the case to dry fully before using again.

Do not allow cleaning agents of any kind to contact the charging contacts; they may be damaged. If necessary, clean them with a soft-bristle, dry brush or compressed air.

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### Storage

Remove all batteries and disconnect AC power before placing the charger in storage. It should be stored in a cool, dry place, protected from weather and airborne debris.

Battery packs should be kept in a cool, dry place whenever possible. Do not store battery packs in direct sunlight, on a metal surface, or anywhere the battery pack cannot cool down. Do not leave the battery pack in a non-operating charger. The battery pack may discharge through the charger rather than hold its charge.

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### Service

There are no user serviceable parts in the Rechargeable Lithium Ion Battery Pack or the Charger. Contact your [LXE representative](#) should your charger require service.

## Specifications

### Electrical

*Note: Battery packs may leak up to 1mA current through the battery contacts when left in an unpowered multi-charger charging pocket.*

Parameter	Minimum	Maximum	Note
Power Supply Input Voltage ( $V_{AC-IN}$ )	100 VAC	240VAC	Auto-switching
Power Supply Input Frequency (freq)	47Hz	63Hz	

### Temperature

Function	Minimum	Maximum	Note
Operating	0°C (32°F)	+50°C (122°F)	Battery packs will only be charged when their temperature is between 10°C (50°F) and 35°C (95°F)
Charging	10°C (50°F)	+35°C (95°F)	Battery packs will not begin charging when their temperature is outside this range.
Storage	-20°C (-4°F)	+70°C (160°F)	Unit is off.

### Dimensions

Weight: 11.6 lbs / 5.3 kg

Plug Type: IEC; 3-prong

Li-Ion 10.8V 1900mAh

## Revision History

Revision / Date	Location	Change
B - Oct 2009	Cover page and contents.	Marketing color scheme
C / Jan 2010	Entire Guide	MX3X Archived / Obsolete

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